

What is claimed is:

1. A flat panel display module comprising:

a transparent substrate with a wiring line terminal section which is formed on one of surfaces of said transparent substrate in at least one of opposing
5 ends of said transparent substrate;

a light emitting section provided in a display region in a center section on said surface on which the said wiring line terminal section of said transparent substrate is formed;

10 a sealing cap provided for a sealing region to cover said light emitting section such that ends of said sealing cap does not reach said ends of said transparent substrate or said wiring line terminal section of said transparent substrate;

15 a flexible printed circuit board connected to said wiring line terminal section and extending along said sealing cap of said transparent substrate; and

a semiconductor device mounted on said flexible printed circuit board for said light emitting section.

2. The flat panel display module according to claim 1, wherein said semiconductor device is mounted on a side of said flexible printed circuit board of said sealing cap.

3. The flat panel display module according to

claim 1, wherein said flexible printed circuit board has wiring line patterns for said semiconductor device on both sides thereof in a portion corresponding to
5 said display region.

4. The flat panel display module according to claim 1, wherein said flexible printed circuit board is provided to extend along said transparent substrate and said sealing cap without being turned back.

5. The flat panel display module according to claim 1, wherein said flexible printed circuit board is bent at least twice between said wiring line terminal section and said display region such that
5 said flexible printed circuit board is approximately parallel to said transparent substrate in said display region.

6. The flat panel display module according to claim 5, wherein said flexible printed circuit board is bent to a first direction opposite to said transparent substrate in a first position between said
5 wiring line terminal section of said transparent substrate and said sealing cap,

is bent to said first direction in a second position between said first position and said terminal section of said sealing cap, and

10 is bent to the second direction opposite to said first direction in a third position between said second position and said terminal section of said sealing cap.

7. The flat panel display module according to claim 6, wherein a bending angle in said first position is within 60 degrees.

8. The flat panel display module according to claim 6, wherein in said first position, the wiring line pattern of said flexible printed circuit board is formed only on one side.

9. The flat panel display module according to claim 6, wherein in said second position, said wiring line pattern of said flexible printed circuit board is formed on both sides and a resist film is applied.

10. The flat panel display module according to claim 6, wherein a bending angle in said second position is within 90 degrees and a summation of the bending angle in said first position and the bending
5 angle in said second position is equal to or less than 90 degrees.

11. The flat panel display module according to

claim 6, wherein said flexible printed circuit board
is bent to said second direction approximately
parallel to said transparent substrate in said third
5 position.

12. The flat panel display module according to
claim 6, wherein a metal film is formed on a back side
of said flexible printed circuit board in one or both
of said second position and said third position.

13. The flat panel display module according to
claim 6, wherein said flexible printed circuit board
is bent to said first direction opposite to said
transparent substrate in a fourth position between
5 said end of said sealing cap and said end of said
light emitting section,

is bent to said second direction opposite to
said first direction in a fifth position between said
fourth position and said end of said light emitting
10 section.

14. The flat panel display module according to
claim 13, wherein in said fourth position, said wiring
line patterns of said flexible printed circuit board
are formed on both sides of said flexible printed
5 circuit board and a resist film is applied.

15. The flat panel display module according to claim 13, wherein said flexible printed circuit board is bent to said second direction approximately parallel to said transparent substrate in said fifth
5 position.

16. The flat panel display module according to claim 1, further comprising:

a frame provided along said end of said transparent substrate.

17. The flat panel display module according to claim 16, wherein said frame supports said flexible printed circuit board together with said end of said sealing cap.

18. The flat panel display module according to claim 1, wherein said wiring line terminal section is formed on both of said surface of said opposite ends of said transparent substrate, and
5 said flexible printed circuit board is connected with said both of said wiring line terminal sections.

19. The flat panel display module according to claim 1, wherein said wiring line terminal section is formed on both of said surface of said opposite ends

of said transparent substrate, and

5 said flexible printed circuit board is
connected with said both of said wiring line terminal
sections.

20. The flat panel display module according to
claim 1, wherein said light emitting section is an
organic EL film.

21. The flat panel display module according to
claim 1, wherein said light emitting section is an
organic EL film,

the flat panel display module further comprises
5 a desiccant section between said light emitting
section and said sealing cap in a center section of
said display region, said sealing cap has a protrusion
section corresponding to said desiccant section,

a plurality of said semiconductor devices are
10 provided on said flexible printed circuit board on a
side of said transparent substrate between said
protrusion section of said sealing cap and said end of
said sealing cap.

22. A manufacturing method of a flat panel display
module, comprising the steps of:

(a) forming a display section, wherein said
display section comprises a transparent substrate

5 having a wiring line terminal section which is formed
on one of surfaces of said transparent substrate in at
least one of opposing ends of said transparent
substrate; a light emitting section provided in a
display region in a center section on said surface on
10 which the said wiring line terminal section of said
transparent substrate is formed; a sealing cap
provided for a sealing region to cover said light
emitting section such that ends of said sealing cap
does not reach said ends of said transparent substrate
15 or said wiring line terminal section of said
transparent substrate; a flexible printed circuit
board connected to said wiring line terminal section
and extending along said sealing cap of said
transparent substrate; and a semiconductor device
20 mounted on said flexible printed circuit board for
said light emitting section;

(b) connecting said flexible printed circuit
board with semiconductor devices mounted to said
wiring line terminal section of said transparent
25 substrate; and

(c) fixing a frame around said ends of said
transparent substrate.

23. The manufacturing method according to claim 22,
wherein said (b) connecting step comprises the steps
of:

forming said flexible printed circuit board;

5 and

mounting said semiconductor devices on said
flexible printed circuit board.

24. The manufacturing method according to claim 22,
wherein said (b) connecting step comprises the steps
of:

mounting said semiconductor devices on said
5 flexible printed circuit board; and

forming said flexible printed circuit board
with said semiconductor devices mounted.

25. The manufacturing method according to claim 23,
wherein said forming step of said flexible printed
circuit board comprises the steps of:

bending said flexible printed circuit board to
5 a first direction opposite to said transparent
substrate in a first position between said end of said
sealing cap of and said wiring line terminal section
of said transparent substrate;

further bending said flexible printed circuit
10 board to said first direction in a second position
between said first position and said end of said
sealing cap;

bending said flexible printed circuit board to
a second direction opposite to said first direction in

15 a third position between said second position and said end of said sealing cap.

26. The manufacturing method according to claim 25, wherein a bending angle in said first position is equal to or less than 60 degrees,

a bending angle in said second position is
5 equal to or less than 90 degrees, and

a summation of the bending angle in said first position and the bending angle in said second position is equal to or less than 90 degrees.

27. The manufacturing method according to claim 25, wherein said forming step of flexible printed circuit board further comprises the steps of:

bending said flexible printed circuit board to
5 said first direction opposite to said transparent substrate in a fourth position between said end of said sealing cap and an end of said light emitting section; and

bending said flexible printed circuit board to
10 said second direction opposite to the said first direction in a fifth position between said fourth position and the end of said light emitting section.